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ABSTRACT

This autoinstructional packet deals with first-hand experiences in exploring wooded areas and some of the ecological problems that might occur therein. It is a learning experience directed toward middle school age students and no previous experience in this field of study is required. The behavioral objectives are listed along with a vocabulary list, a suggestion for an evaluation technique that could be used. Some extra student activities are included and a short bibliography is given. (EB)

WHAT ARE THE EFFECTS OF ECOLOGY?

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[illegible]-T TEACHER'S GUIDE

Packet Number - [illegible].5D

Title - What Are The Effects of Biology?

Grade Level - Middle

Prerequisites - None

Behavioral Objectives -

1. The student, having completed this adventure through a wooded area, will be able to identify certain ideas that are of particular interest to him.

2. The student's ability to differentiate between certain ideas concerning the effects of ecology will be enhanced.

3. The student should be able to solve some problems that affect ecology in a wooded area according to his or her own interest.

Equipment and Material -

* Student's guide
Cassette tape recorder and earphone
* Slides produced by 35 mm camera
* Taped cassette
* Evaluations - sample, student
* Series of pictures illustrating surroundings in wooded areas
** Terrarium display - woodland - fungi inclusive of mushrooms - growth of fungi or portions of branches or rotted logs
** Collection - debris representing as closely as possible the natural habitat
** Microscope
** Miscroscopic slides
** Samples - soil, water, silt, sand, loam, top soil
** Other things can be provided

* Included in packet
** Must be prepared in advance

Space Required - Carrel, library table

Vocabulary -

surroundings	litter	entanglement
accumulation	habitat	intricate
algae	interspersed	intriguing
abnormally	survival	phenomenal
decomposers	entrapped	profusely

Sample Evaluation -

There are two terrariums placed on a table. Differentiate between two different habitats.

The samples on the table represent things located in the woods in their natural habitat. Identify two that are of particular interest to you.

Try to solve a problem that you are familiar with in a wooded area to your own satisfaction.

Suggested Activities -

Take a field trip to an area similar to the one visited on your adventure through slides and tape. Try to visit similar places when you can to be able to differentiate one from another.

The opportunity provided to get a variety of different samples of water and soil would be helpful. Identify different samples as you can receive them.

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McGowan, Alan. "Testing Fresh Water", Science Year (The World Book Science Annual), pp. 146-155, 1971.

McCormick, John. The Life of the Forest. McGraw Hill Book Company, New York, 1956.

Yen. Harry S. C. "The Fragile Beauty All About Us", National Geographic. (December, 1970), pp. 785-795.

WHAT ARE SOME EFFECTS OF ECOLOGY?

There are times when you would like to learn about things by taking trips and being there for first-hand experiences. This is extremely nice and many times quite possible. However, there are times when this learning may require you to find information either in place of being there or as a preview to the trip you are taking. The surroundings, such as a wooded area in nearby communities, may be quite familiar to some of us and to others it may have little meaning. Sometimes as we become exposed to those things that surround us in a more meaningful way we become more interested in them.

The purpose of this presentation, a trip to a wooded area through slides, is to provide some material that will help you to become aware even more of the various aspects that affect a wooded area. As you begin an adventure through the woods there will be particular attention given to certain ideas within the slides. It will be quite meaningful for you to observe closely those ideas presented which will give you even more opportunity to discover those things that are of interest to you. Try to remember the various things you find from the beginning of the presentation as this will help you as you proceed through to the end of your trip.

As you turn to each slide in the presentation to examine it, the cassette tape recorder will be used to discuss many of the ideas taught within the slides. If you wish to spend a longer time on a particular slide to find out more ideas, depress the stop button on the tape recorder. Before each discussion on tape you will hear at least one click or more. This will represent the number of slides you should look at during and at the end of each discussion.

As an example it may be helpful as you take this trip to look at a particular thing such as a profile or cross section of soil and try to discover as much as you possibly can. You'll note things like color changes of soil, depth of each color, vegetation or the variety of plants that grow, and other consistencies such as seeds, nuts, and bark, or many others you can find. You will probably see certain things like roots of trees that may lead you to other ideas.

With these things as guides you are ready to turn on the slide projector and tape and begin your trip. The first sight you come to is a tree with an accumulation of green fuzz or algae, a cluster of single-celled plants. One thing you'll notice and may be of particular interest to you is the number of times and places you find this growth on this adventure or maybe even on an adventure in the grass or shrubbery of yours or your friend's house.

Not uncommonly as your continue, you may find a rotten log lying here and there. You will probably be inclined to wonder why so many of these are found and what might be the use of them. You may also wonder what affect on the woods the removal of these logs might have.

As you walk on your eyes glance to a scene which may be one quite unusual yet fairly common in a wooded area. The sight before you is a tree that apparently has grown abnormally as compared to the tree that receives all the proper conditions for growth, such as air, water, and sunlight, etc. There are a variety of examples of this condition and a variety of sizes involved. You will probably have a number of suggestions to propose as to why this occurred.

One object that you have the opportunity to see is the cross section of a tree trunk. You may have seen this in show cases in school, in laboratories, or in a wooded area and yet the fascination continues even with familiarity. It is helpful to know the age of the tree and the fact that within the cross section of a tree trunk are the parts of the tree directly associated with the life and survival of the tree.

If you have ever been surrounded by four or five of your friends in a little wrestling match, you get the feeling for certain portions of the woods. A fallen log is seen completely entrapped by vines and vegetation. Yet, after careful considerations and careful examination of all the ideas involved, you may receive much the same feeling as in a mutually friendly wrestling match. What looks like a completely desperate situation may actually add to the continuance of the community in a wooded area. You will probably see various instances where this has occurred in lesser or greater amounts.

After you leave the sight of entanglement you come to a similar situation at a different location and a different scene. A current problem we face is pollution of streams caused many times by a collection of debris. One common form that aids this collection is that of sand. silt, and tree trunks. Again you will see this occur in varying amounts, some more serious and harmful to the stream than others. You will find, however, that actually for certain circumstances this occurrence might have made a good situation such as protecting a certain animal.

Along the area of the creek there are numerous interesting sights. Perhaps the little stream will give you some new ideas. Interestingly enough, there are often found within these little streams

sticks, fallen logs, tree branches, and varying amounts of debris. There is much to be done and much you as an individual can do to help clean up areas such as these. There are often school groups, 4-H clubs, boy scouts, and other individual interest groups through which your interests could be coordinated.

The creek area provides a setting in which nature plays a tremendous part. A soil profile gives the opportunity to explore beyond the surface on which we walk. A fascinating thing to see is the very intricate system of the roots of trees exposed above the ground. Interesting also is any growth that occurs within the area you are observing. One sight we also have the privilege of seeing is also located in the creek area. The water hole which occurs for numbers of reasons and there may be many detrimental effects which could cause additional problems. Some of the practices in the past have been to ignore these problems because they couldn't be seen by everyone. However, the impact of these problems has been made quite clear.

An experience few of us haven't shared is that which again affects the movement of the stream. The deposits of vast amounts of rocks and fallen trees form an intriguing adventure for one exploring, but much planning and hard work for those endeavoring to keep the creek clean and the water flowing.

A question that often comes to mind concerns the vast changes that a stream seems to undergo. Depending upon the season something that interests you may usually be found readily. It is not unusual to see a stream that has become very muddy during specific seasonal changes. Generally, in late spring or early summer a particular amount of mud has accumulated. We have spent hours of fun perhaps playing in the area of the creek enjoying things such as high waters, walking across an area while the creek was almost dry, and wondering about the cause.

At the banks of creeks it has been almost a custom to see a young child sitting there with a branch broken off from a tree with a string tied to it attempting to catch fish. The befuddling questions that arrive at an occasion like this sometimes go unanswered and unsolved. Why are there so few fish and why has the stream been left to get in its present condition? The example you see before you during this part of your trip is typical where the depth of the water is very limited and piles of stones have continued to block certain areas of the stream from flowing.

A phenomenal sight to come upon - the next portion of your adventure in the woods - brings to you an experience that you are quite familiar with by now. You will probably recognize a variety of things

about which you have your own ideas. The tree stump surrounded by a tremendous amount of vegetation suggests a very interesting process that nature provides handily.

Your trip has brought to you many different things located in the woods which may have interested you in a number of different ways. One of the most unique occurrences unfolds because of seasonal change and various types of vegetation, bark, seeds, soil, and others including various types of debris such as carcasses of dead animals, ground up, chewed, dissolved, and eaten by millions of tiny animals and plants called decomposers. The thing to consider here, as you draw upon your ideas, is that there is definite cover here for plants and animals but how does this contribute to the rest of the woods community.

An extremely fascinating scene to come upon in the woods and one that can be seen quite readily in the backyards of homes and developments centers around an important agent of decomposition of litter. The earthworm ranks with bacteria and fungi as important agents. There is quite a story concerning this animal, and you have heard many things perhaps. Primarily, the habitat or place where this particular worm lives is very interesting. As you rely on your own interest and experience to draw upon for ideas, it will probably help you to consider the way in which soil and litter have been mixed in this particular area of your adventure.

You make your way throughout your trip, and it becomes difficult to leave certain areas as you could probably stay for days and days. Continuing your awareness of the things in the woods, you hear one echoing the sounds of spring. Generally heard and not so often seen in the woodland's wet places are toads and frogs. It is quite interesting to note what causes this pleasant amphibian chorus and who is the lead singer. However fascinating this may be, there is a wealth of ideas in store for you if you pursue this area closer and observe more often. The primary question again would perhaps involve the contributions made by frogs and toads in relationship to the community in which they live.

Your trip now brings you to a portion of scenery in the woods that is almost unbelievable upon considering the way in which it occurred. Though you have not concentrated on this particular aspect of the woods yet it is closely related to the rest of the woods community. Wild flowers of many kinds interspersed with other plants can be seen blooming profusely in the spring especially. You are provided here with a good opportunity to draw upon your own interest and ideas to consider the various relationships wild flowers have with the rest of the community in which they live. How wild flowers contribute to the rest of the community would be

of importance. A tremendous opportunity also exists at this part of your excursion to classify various plants into different groups as you can view them.

Along the way we have seen existence as it takes place in the woods. There are a number of occurrences both of plant and animals that prove extremely interesting. Some of these happen because of a natural process of survival. Certain animals depend upon eating certain other animals for their food. For instance, one animal, a raccoon, unable to find a smaller animal such as a mouse to feast on, may eat the same meal as the mouse has eaten - corn. However, a mouse eats a smaller animal than is eaten by a raccoon that in time may be eaten by a larger animal. A close watch of pets, maybe even at yours or your friend's house may reveal some of the instincts that animals possess to survive. You have on occasion watched a cat bring back a mouse and a few minutes later being chased by another animal.

Throughout your trip you have been exposed to life in a wooded area stressing primarily the various advantages and disadvantages that can occur in natural habitats. As we near the end of what may have seemed to be an intriguing adventure, you witness a scene that may have caused it all to be impossible.

There are a number of different aspects to the growth of trees in a wooded area. As you go along the way you will come to certain man-made circumstances that have changed the wooded area for better or worse. There are a number of these but you see before you one of the most devastating we have ever known. This growth in this part of the wooded area was greatly affected by a fire. A close inspection will reveal some results of the damage. Growth appears to be proceeding normally although you may detect some problems now or in the future. You have now come to the end of your adventure.